BPISAE RESEARCH ACTIVITIES

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PLANT INDUSTRY STATION, BELTSVILLE, MD. JANUARY 1950

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Brannan Opens ARC Lecture Series

The need to relate research to the whole picture of agricultural production and beyond that to the total economy of the nation was emphasized by Secretary Charles F. Brannan in a talk to employees of the Agricultural Research Center at Plant Industry Station, January 6.

"What we do, day in and day out, has far greater significance than we realize," said Mr. Brannan. "Our work in the Department has an important bearing on democracy throughout the world."

The Secretary paid high tribute to the accomplishments of agricultural research. "As a result of it," he said, "farmers of this country now produce three or four times as much per man hour as they did only a decade ago. Improved volume, quality, and variety of agricultural production are all the results of a wonderful job of research. We must now concentrate greater efforts in getting food into the mouths of people who need it and can pay reasonable prices for it."

Mr. Brannan pointed out that the policy of agricultural price supports is based on the philosophy that farmers must not be penalized for efficient and abundant production. Experience shows that depressions start in farm areas. Economic forces that may result in a nationwide depression are set in motion, when farm income drops. One of the most serious problems now confronting this country is to decide how much further farm income may be permitted to drop without endangering the national economy.

Dr. P. V. Cardon, administrator of ARA, introduced Secretary Brannan. The talk by the Secretary inaugurated a series of six lectures to be given every other Friday afternoon at Plant Industry Station. Other speakers are to be T. Roy Reid, director of Department personnel; Dr. Cardon; O. V. Wells, chief of BAE; Ralph S. Trigg, administrator of PMA; and Stanley Andrews, director of OFAR. The talks have been arranged by the U. S. Department of Agriculture Graduate School to give Beltsville employees a well-rounded, up-to-date survey of Department programs.

Fiber Strength High in New Cottons

Cottons with new and extended properties developed through research promise to lend themselves to many new uses and to compete more favorably with synthetic fibers, Dr. Charles R. Sayre (C&OFC&D) told the Plant Industry Station seminar recently.

The new varieties have much higher fiber strength than any now grown. The shift in breeding objectives from fiber length to fiber strength has come about as the result of laboratory appraisals of annual varietal and environmental studies. These show that the strength of cotton yarn depends on three qualities in the fiber--strength, length, and fineness. The data indicate that increases in fiber length and fineness add to neppiness in the yarn and to spinning costs, but that increases in fiber strength enhance the use value of the yarn.

Heritable fiber strength has been stabilized in two new cottons developed by George Harrison at the Shafter (Calif.) station. One of these comes from hybridization of Acala and Hopi--a primitive cotton cultivated by the Indians--and delayed backcrossing to Acala.

This new cotton, AHA 6-1-4, has a staple length of about 1-3/32 inches, a good length uniformity, relatively small fiber perimeter, and unusual cell wall thickness. This cotton, now through the seventh inbred generation, retains much of the wilt and nematode resistance of the primitive parent. Yields have been equal to the station average of about three bales per acre. In carded yarn spinning tests, it has far exceeded any other cotton of its length in yarn appearance, grades, and yarn strength. Neppiness--or imperfections--and spinning waste are exceptionally low.

Tested in comparison with the imported Egyptian Karnak variety, AHA 6-1-4 showed a yarn strength 90 percent as high and better yarn appearance and grade. In tests by fine spinners, it has been pronounced good in processing efficiency.

Though still in the development stage, triple hybrids developed by the late Dr. James O. Beasley and Dr. Thomas Kerr (C&OFC&D) offer the most impressive gains in fiber strength. These represent a synthetic hybrid of Asiatic cotton, American upland, and Thurberii, a wild species growing in the mountains of Arizona. The cross was produced through the use of colchicine to double the chromosome number. Fiber of this triple hybrid has a breaking strength approximately 75 percent greater than that of the commercial varieties now generally used.

Two new American-Egyptian cottons developed at the Sacaton (Ariz.) station and released as commercial varieties are superior to S x P, the chief American-Egyptian cotton up to the present. Dr. Sayre notes that production of American-Egyptian cottons will probably be expanded during the next 2 years because these cottons do not come under acre allotments and marketing quotas.

The creation of improved cottons with new and extended properties is only one part of the research picture, Dr. Sayre observed. He mentioned progress in the control of cotton diseases and insects, the use of new chemicals as defoliants and herbicides; and the favorable prospect of lowering costs through mechanization. Relating research to the cotton production picture as a whole, Dr. Sayre believes that by providing better cotton at lower costs, it will be possible to release land and labor and to supply capital for fitting other enterprises around cotton in balanced and efficient farming.

Corn Production in South Reviewed

Latest round-up on the spectacular increases in corn yields in the South comes from a talk given by Dr. Paul H. Harvey (CC&D) before the American Seed Trade Association.

The 1949 harvest of nearly 614 million bushels in 13 Southeastern States is 12 percent higher than the 10-year average. But this represents an increase in yield of 50 percent an acre because the 1949 crop was produced on only 76.5 percent as much acreage as the 10-year average.

To indicate that these yields are produced more efficiently, Dr. Harvey cites a study summarized in the University of Kentucky Circular No. 433. Data from farms participating in the Kentucky Corn Derby in 1946 show that cost of production per bushel was 48 cents for farms showing average yields of 47 bushels per acre, but only 39.5 cents for farms with average yields of 85 bushels per acre. These costs, incidentally, did not include charge for use of land nor cost of cover crops. In terms of labor, one man-hour produced more than twice as much corn when improved practices were used--5.1 bushels as compared with 2.3 bushels.

That Southern farmers have, of their own accord, reduced corn acreage nearly a fourth in the past 10 years is good evidence they favor a balanced agriculture, says Dr. Harvey. Increased corn yields are making it easier for farmers to practice better cultural methods with other crops, particularly small grain, soybeans, and pasture improvement.

Turning to the research side of this picture, Dr. Harvey stressed the importance of hybrids adapted to Southern conditions.

The hazard from insect damage is high both in the field and in storage in the South. Dr. Harvey says breeders help protect the grower from this hazard by developing prolific strains with small to medium ears. These have long husks, an advantage in reducing weevil and earworm damage.

In general, corn strains which germinate quickly and grow rapidly in the seedling stage tend to escape serious damage from corn rootworm, budworm, sugarcane beetle, bill bug, and the lesser and greater cornstalk borers. So far, the European corn borer has not yet established itself in the South. Possibly the winters are too mild for it.

Hybrids adapted in the South must have stalks and roots that are not only strong during growth but after maturity as well. The common practice of permitting ripe corn to stand in the field from August until after other crops have been harvested in November calls for a variety with high resistance to root rot organisms.

All of the major corn disease organisms are found in the region. Their relative importance has greatly increased in recent years as a result of better cultural and fertilizer practices. The very fact that more corn plants are grown on an acre favors the spread of disease on susceptible strains. The increased use of nitrogen which makes the plants more succulent also tends to increase the susceptibility to some diseases.

Did You Know That

The total number of soil survey reports was increased last year to 1,580 by the addition of:

Candler County, Ga.
Johnson County, Ind.
Strafford County, N. H.
Jackson County, N. C.
Transylvania County, N. C.
Grainger County, Tenn.
Tazewell County, Va.

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Approximately 10,000 plant introductions were brought in. The introduced plant material consisted of 211,137 consignments, which were distributed to 43 States, Hawaii, and Puerto Rico. A total of 13,431 consignments of plants or seeds was sent to 38 foreign countries on an exchange basis.

Collections of special interest to research workers include: Wild cottons from Guatemala and Mexico; cereals carrying cold resistant and drought-tolerant factors from the highlands of northern India, and extensive collections of cereals from Turkey; grasses and legumes, largely adapted to dry-land cultivation, from Turkey; and a collection of oil-producing seeds from India and Turkey.

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New varieties released this past year include:

Chancellor wheat for the Southeast
Wasatch, a dwarf, bunt-resistant wheat for the Northwest
Shelby, a high-yielding, stiff-strawed, smut- and rust-resistant oat for the North Central States
Kent, an early, disease-resistant oat for Michigan
Ventura and Westdale, rust-resistant red oat varieties for California
Improved Arivat barley for the Southwest
Moore, a stiff-strawed malting barley for the North Central States
Calrose, a medium-grain rice for California
Acala 28 and Acala 44, strong fiber cottons for the Southwest
U. S. 266, a leaf-spot-resistant sugar beet
Kuling, Meiling, and Nanking, blight-resistant chestnuts
Progress, a crisphead lettuce adapted to the East
Sunray, a golden-yellow, highly wilt-resistant tomato
Alpine, a very early tomato valuable for crossing with standard varieties to produce hybrid seed
Crystal Wax L 690, an onion with less tendency to split and bolt than present commercial varieties grown in Texas

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Of 603 organic compounds tested during the year to determine whether they have plant-growth-regulating properties, 116 caused plant responses of various types. For example, when 2,4-dichlorobenzylnicotinium chloride was applied to the stems of bean seedlings grown in darkness, short sturdy plants developed. Except for failure to develop chlorophyll, these were similar in appearance to field grown seedlings and in contrast to the spindling types usually produced in darkness.

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Loss of 30 to 40 percent of refrigeration capacity through open doors of fruit and vegetable cold-storage plants using pallets (platforms) and fork-lift trucks were recorded in studies by agricultural engineers to improve the design, equipment, and handling procedures in cold storage.

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With new genetic techniques it is now possible to use the species Melilotus dentata and M. polonica in breeding improved sweetclover varieties low in coumarin. This is the decomposition product of spoiled sweetclover and spoiled silage that causes bleeding in cattle. Hybridization of biennial white sweetclover (M. alba) and M. dentata has provided promising high-yielding breeding material for humid areas. Successful hybrids between M. alba and M. polonica are giving lines with larger seed, needed in the Great Plains to insure better establishment of stands.

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These items come from the annual report of Dr. Robert M. Salter, Chief of the Bureau.

DDT and Seed Germination

Evidence that DDT in pure form does not affect germination of seed comes from a study made by H. T. Hopkins (SM&I) and Dr. E. H. Toole (F&VC&D). Their investigations are a part of research to explore the effects of this widely used insecticide on all phases of plant growth.

DDT in pure form did not affect the initial stages of germination of cucumber, rye, squash, or lima bean seed planted flat on special crepe paper impregnated with a large amount of the compound. It did, however, affect lima bean seed planted with the hilum (eye) down. Some of the seed disintegrated before germination was completed.

Technical DDT significantly reduced the percentage of germination of rye and squash seed and of lima bean seed planted with the hilum down. Cause of this is believed to be some component in the formulation other than DDT.

After germination had started, the early growth of lima bean, cucumber, and rye seedlings was profoundly affected by high concentrations of technical DDT, the study shows. This confirms previous results showing DDT injury to seedlings of certain crop plants.

Cotton Mechanization Featured at Shafter Field Day

Two field days at the U. S. Cotton Field Station, Shafter, Calif., this past year attracted nearly a thousand visitors, reports George J. Harrison (C&OFC&D) in charge of the work there.

Featured were exhibits showing complete mechanization of the cotton crop from preparation of the seedbeds to harvesting. Mr. Harrison cites a striking example of the increased efficiency in mechanization. At Shafter they can now harvest nearly 98 percent of the cotton crop in one time over the field with a spindle-type picker. The yield is from two to three bales an acre. And the trash content is low. It averages only 5 percent compared with a little more than 7 percent trash in hand-picked cotton from adjoining fields.

Mechanization requires a cotton variety that matures uniformly. This is met by Acala 42, the new cotton developed by Mr. Harrison and his coworkers at Shafter.

Defoliants are used to reduce the trash content. Investigations at Shafter indicate that timing is the key to successful defoliation. The chemicals work best when the plants are fully matured but still turgid. This calls for earlier application on light soils where the plants dry out rapidly after irrigation is stopped than on heavy soils that dry out more slowly. Results showed variations from 6 percent defoliation to 86 percent when the same chemical was used on cotton planted on different soil types. About the same variation was recorded for the 13 defoliants tested this year.

The research staff at Shafter runs tests on all chemicals offered to aid cotton production. Over a period of years they have tested between 20 and 25 materials believed promising as soil disinfectants to control verticillium wilt--a serious disease in the area. None however has given any control.

The Field Station at Shafter was established in 1922. Mr. Harrison went there in 1934. The staff working under his direction consists of three technical men, two laboratory technicians, a secretary, and five laborers. In addition to the 80-acres of the Station, they use a nearby 40 acres for field tests of mechanized production.

Small test plots of pyrethrum and castor beans are conducted on the Station annually in cooperation with the Division of Tobacco, Medicinal, and Special Crops. Spacing and irrigation tests are in progress with the Division of Rubber Plant Investigations. The Division of Sugar Plant Investigations conducts variety trials with sugar beets for curly top resistance and yield trials with sweet sorghum varieties. The Division of Fruit and Vegetable Crops and Diseases has tested grape rootstocks on the Station almost since its beginning.

Kenland Invades the Cotton Belt

Tests of Kenland red clover at Stoneville and State College, Miss., and at Camp Hill, Ala., show this new variety is highly resistant to southern anthracnose and also lives longer than other varieties, reports Dr. E. A. Hollowell (FC&D). The Kenland was developed by the Kentucky Station and BPISAE. For best results it calls for adequate applications of mineral fertilizers.

Tobacco Improvement Work Advanced

Bureau research in breeding improved varieties of tobacco made the news in December when Dr. E. E. Clayton reported to the AAAS on recent advances. He pointed out that breeders have laid the genetic groundwork for stable, fertile crosses between wild types and cultivated tobacco. From these crosses are coming improved varieties with resistance to some of the worst diseases that cloud the tobacco farmer's horizon.

In a seminar at Plant Industry Station earlier in the month, Dr. Clayton reviewed highlights of the breeding program inaugurated in 1934. The first need was for better sources of disease resistance, superior germ plasm in which resistance is inherited simply and decisively. This has been found in wild species drastically different from cultivated tobaccos.

"We expect to obtain from these wild species five kinds of simply inherited immunity or near immunity to five major diseases," said Dr. Clayton. "It appears that when this is accomplished it will be less difficult to incorporate in a single variety all five types of resistance than it is now to incorporate one type of resistance that depends on multiple genes."

An interesting case in point is blue-mold resistance. Ten years after a successful cross was made between cultivated tobacco and a highly blue-mold resistant wild species of Australia, intensive work with the complicated chromosome complex of the cross has resulted in the transfer of the blue-mold-resistant genes into a new type. This is of far-reaching importance as a step toward developing blue-mold-resistant varieties of tobacco.

The importance of other phases of the breeding work was underscored by Dr. D. M. Crooks in a work conference held at Plant Industry Station in December. He stressed the value of careful and time-consuming performance evaluations in the field and selection for yield, disease resistance, and adaptation. These must be followed by evaluations of physical and chemical properties of the cured tobacco such as rate of burn, nicotine content, sugar content, color, and texture.

Here for the meeting to compare results of field and quality evaluations in the cooperative work were F. A. Clark of Gainesville, Fla., J. G. Gaines, Tifton, Ga., J. F. Bullock and Dr. T. W. Graham of the Pee Dee Station, S. C., F. A. Todd, Raleigh, N. C., Dr. E. L. Moore, Oxford, N. C., and Dr. S. A. Wingard of Blacksburg, Va. In conference with Dr. Crooks, Dr. Clayton, Dr. J. E. McMurtrey, Dr. C. W. Bacon, and Dr. R. N. Jeffrey, they reviewed evaluations of lines under study this past year, made selections for field tests at various locations, exchanged seed and data, and mapped plans for the coming year.

Correction: In the December issue of RESEARCH ACTIVITIES, New England flax or hemp was given as the common name for phorium. This should have been New Zealand flax or hemp.

Two Snapbean Varieties Released

Topcrop, one of two new snapbean varieties developed in the Bureau's breeding program, was named a gold medal winner in the All-America selections for 1950. In making the award, the committee called Topcrop "the highest quality snapbean for the table, for canning, and for freezing."

The new bean is a heavy yielder, largely because of its resistance to common mosaic, found in all bean-growing areas, and to New York 15 mosaic, troublesome in seed areas of the West. Tests show that in many States it yields nearly twice as well as such leading varieties as Tendergreen, Stringless Black Valentine, and Landreth Stringless Greenpod. Average yields for Topcrop in 23 States are 4.9 tons per acre as compared with 2.7 tons for Tendergreen and 2.6 tons for Black Valentine.

Because of its low fiber content, Topcrop suffers more seed injury during threshing than many varieties of lower quality. Consequently, the seed may not have as high a germination as seed of varieties with high fiber content. However, increased yields due to its mosaic resistance and wide adaptability more than compensate for slightly reduced germination.

Contender, the other new snapbean, was developed at the Regional Vegetable Breeding Laboratory, Charleston, S. C., in cooperation with the Mississippi, Alabama, and Florida Stations. It is resistant to common bean mosaic and has considerable resistance to powdery mildew. Of better quality than some of the present favorites for shipping, Contender stands up well in handling. Under favorable conditions, the new bean is a heavy yielder, producing substantially more green beans to the acre than Stringless Black Valentine, which it will possibly replace in some areas.

Seed to both Topcrop and Contender are available from commercial sources.

Nematode Resistant Lespedeza Gives High Yields

A new high yielding strain of Korean lespedeza, resistant to nematodes of the area and to powdery mildew,has been developed in the cooperative breeding program with the North Carolina Agricultural Experiment Station.

This new strain, F. C. 31480-43, came from a seed lot secured from the Delaware Agricultural Experiment Station in 1939. The original seed of this lot came from China Grove, N. C. The new strain was selected out of the Delaware seed lot by H. L. Hyland, (FC&D), at Beltsville in 1943.

The superior yielding ability of the F.C. 31480-43 has been particularly striking on nematode-infested soils of the Upper Coastal Plain. The new variety has given outstanding yields on five-year tests at Beltsville. Nematode studies at the North Carolina Station the past three years show this variety is resistant but not immune to the root knot nematode of these soils. Small galls are often found on the roots of the new strain. Seed is not yet available in commercial quantities but plans are being made to increase this variety at the North Carolina Station as rapidly as possible.

Ultra-Violet Lights Offer Possibilities in Corn-Borer Control

Whether electricity holds the answer to the corn borer problem is still the $64 question. Cautioning that there are many disadvantages to be overcome before lights and traps can be recommended to the farmer, J. G. Taylor (FE) and H. O. Deay, entomologist at the Indiana Agricultural Experiment Station, reported advances in their research findings before the American Society of Agricultural Engineers recently.

Lamps producing light in the near ultraviolet region have been found the most attractive to the moths. Electrocutor-type traps functioned satisfactorily in killing a high percentage of moths attracted.

Field tests this past summer showed that lamps and traps of this type reduced the population of corn borers by 57 percent to a distance of 46 rows from the lamp and nearly 70 percent from the first 26 rows from the lamp. Little difference was noted in effectiveness of lamps spaced 100 feet and 200 feet apart. There was no build-up of infestation immediately in front of the lamps.

Additional tests are to be made next season on spacing grids and amount of voltage for greatest efficiency. The traps used this year were rated at 3,500 volts at a maximum current rating of 10 milliamperes. Spacing in the grids was 3/8 inch wide.

Other crop-damaging insects attracted by the lamps included the tomato hornworm, tobacco hornworm, and the corn ear worm.

The engineers point out that there are certain disadvantages in the use of electric lamps and traps for insect control. Among these are the need for installing wire, the possibility of destroying some beneficial insects, the present lack of effective trapping devices. Until such equipment is further improved, the engineers suggest that farmers continue to rely on methods other than light traps for European corn borer and corn ear-worm control.

New Blueberry Varieties for North Carolina

The release of two new blueberry varieties--the Walcott and the Murphy--is announced by Dr. Geo. M. Darrow (F&VC&D) and E. B. Morrow of the North Carolina Station. The new varieties meet a need for high quality and good flavor berries that ripen early in the season. They are expected to replace Weymouth, now the major early market variety in North Carolina, as rapidly as planting stock becomes available.

The new varieties are superior to Weymouth in two important characters--flavor and resistance to canker, a serious disease in North Carolina blueberry plantings. In size and color the new berries resemble Weymouth. The dark color of the new varieties is somewhat more appealing than that of Weymouth though not so attractive as that of Stanley, another widely grown but later commercial variety.

Parentage of Walcott and Murphy includes a selection from the wild blueberries in North Carolina. They were selected in 1939 from seedlings grown at Atkinson, N. C. These seedlings came from a cross between Weymouth and F-6. The F-6 was obtained from a cross between Stanley and Crabbe 4, a native wild selection. The new berries have been tested only in North Carolina and are not recommended for trial north of that State. The names of cooperating growers who have plants can be obtained from E. B. Morrow, in care of the North Carolina Station at Raleigh.

Advances in Plant Disease Research

Among recent developments in the Plant Disease Warning Service reported by Dr. Paul R. Miller (M&DS) are:

(1) A field technique for mass inoculation of tomatoes and potatoes with blight. Worked out by Dr. Jack Wallin, the new technique will provide basic data for estimating probable crop losses from field surveys.

(2) Installation of weather instruments for recording temperature and relative humidity at 26 locations in the East. The records are taken at the level at which the plants are growing rather than the Weather Bureau's standard height of 5 feet.

(3) Evidence from weather records for certain tobacco growing areas since 1931 showing a definite correlation between the five blue mold epidemic years and high temperatures in January.

(4) Decision by the U. S. Weather Bureau to supply the Warning Service with enough copies of the 30-day weather outlook so that each State pathologist serving as a key man may have one.

Dr. Miller covered these and other points in a broadcast over Station WJZ, New York, when he attended the annual meeting of American Phytopathological Society in December.

Mower Strip Method Better Measure of Forage Production

Two techniques for determining forage production of dairy pastures have been compared at Beltsville over the past three years. One method uses a 4' x 4' pasture cage, which protects the herbage from grazing. Yields are taken from beneath this cage at regular intervals. The second method consists of mowing strips 3' x 30' in size in the same pasture in which the cages are used. Yields are taken just before the cattle are turned on for grazing.

The results of these studies--reported at the recent meeting of the American Society of Agronomy--indicate that the mower strip method generally gives a better measure of the amount of pasture forage an animal actually consumes for the season than the cage method. This method, of course, could not be used on continuously grazed pastures. Where the mower strip method is applicable, it has several advantages in addition to its comparative accuracy in determining dry matter yields. These include: (1) Less time consuming and easier; (2) theoretically, a better sample of pasture, since the strips are long and narrow; (3) the danger of losing a sample due to animals moving the cage is eliminated.

ON THE CALENDAR

February 6-9	American Soc. Sugar Beet Technologists' Meeting, Detroit, Mich.
February 8-10	Southern Agricultural Workers' Conference, Biloxi, Miss.

NOTES ON PERSONNEL

Weiss Heads Soybean Research

Dr. Martin G. Weiss, Ames, Iowa, has been named to succeed William J. Morse as principal agronomist in charge of research in soybeans.

A native of Iowa, a graduate of Iowa State College with BS, MS, and PhD degrees, Dr. Weiss entered the Bureau as a junior geneticist in May 1936. Until 1942 when he went on active duty with the Army, he was in charge of the soybean improvement program for the State of Iowa under the direction of the Iowa Experiment Station and for the States of Iowa, Minnesota, and South Dakota for the U. S. Regional Soybean Laboratory. In this work he developed superior soybean varieties adapted for this section and conducted cultural studies. The Hawkeye and Adams varieties judged superior in the entire northern half of the Corn Belt were developed under his direction.

Dr. Weiss entered the service as a first lieutenant and was advanced to the rank of lieutenant colonel before the end of the war. He served in the field artillery branch of the ground forces in Normandy and northern France.

For the past four years, Dr. Weiss has been research professor and professor of farm crops at Iowa State College. He has been in charge of graduate training in plant breeding for six graduate students and has directed the plant breeding research in forage crops, He is the author of a number of articles, which have appeared in the Journal of the American Society of Agronomy and similar publications.

Miller on Special Committee

Dr. Paul R. Miller (M&DS) is a member of the special committee on spray tolerance authorized by the American Phytopathological Society at the recent annual meeting in New York. The committee has been assigned the task of presenting information on the need for fungicides in the production of edible crops before the Congressional Committee now holding hearings on chemicals in agriculture.

Vaughan Award to Emsweller and Stuart

Dr. S. L. Emsweller and Dr. Neil W. Stuart (F&VC&D) were awarded the Leonard H. Vaughan Memorial Award of five hundred dollars for their paper entitled "Use of Growth Regulating Substances to Overcome Incompatibilities in Lilium," published in Volume 51 of the Proceedings of the American Society for Horticultural Science. Their investigation showed that when some of the growth regulating substances were applied at the base of the pistil at the time of pollination they were effective in overcoming self- and cross-incompatibilities in certain kinds of lilies.

Powers at Texas A & M

Dr. LeRoy Powers (F&VC&D) has returned to the Cheyenne (Wyo.) Horticultural Field Station from Texas A. & M. College where he taught a ten-week course in Genetics. Offered for credit only to graduate students, the course was audited by many members of the faculty and Experiment Station staff.

RETIREMENTS

David Edward Brown, a native of College Park, Md., retired as chief scientific aid, October 31, 1949, after a service of 43 years and 4 months with the Bureau. He has been stationed for the entire period at Upper Marlboro, Md., where he was in charge of the cooperative work of the Division of Tobacco, Medicinal, and Special Crops and the Agricultural Experiment Station of the University of Maryland.

His work to improve cropping systems, fertilizer practices, and varieties of Maryland tobacco has done much to aid tobacco culture in Maryland. Two of his outstanding achievements are: (1) The production of better quality tobacco following the weed fallow rotation system; and (2) the selection of Maryland Mammoth variety which was the plant largely responsible for the photoperiodism work of Garner and Allard.

Mr. Brown plans to continue to live at Mt. Calvert, his home on the Patuxent River.

John H. Stephenson retired December 30, 1949, after nearly 38 years of service as an editor.

Mr. Stephenson and his wife live at 3211 Central Avenue, N. E., Washington, D. C. They have one son at home, and a married son and married daughter living here.

DEATHS

E. G. Moss (TM&SC) died December 12, 1949, at Oxford, N. C. He was 72. Mr. Moss began work for the Bureau as special agent in Tobacco Investigations March 15, 1910. He worked in cooperation with the North Carolina Department of Agriculture and the Agricultural Experiment Station.

Mr. Moss directed the Tobacco Experiment Station at Oxford for more than 35 years. During that time he was associated with many important developments related to the culture and curing of flue-cured tobacco. He worked with Granville wilt and carried out crop rotation, variety and fertilizer trials. He helped develop many improved tobacco varieties, notably the 400 series resistant to black root rot; Oxford 1, 2, and 3, resistant to black shank; and Oxford 26, resistant to Granville wilt.

Lewis T. Leonard, well known agricultural bacteriologist and long-time specialist on the control of commercial inoculants for crops, died December 7, 1949, at Garfield Hospital, Washington, D. C., after a brief illness. He was 64.

A native of Pennsylvania, Mr. Leonard entered the Department in 1904 in the Bureau of Vegetable Pathology and Physiology which later became the Bureau of Plant Industry. He attended George Washington University where he obtained the degrees of BS and MA.

During his forty years of scientific work he was concerned with research on the bacteria forming nodules on the roots of legumes and with the related regulatory work. He was the author or co-author of some 30 articles which appeared in various scientific journals.

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* PUBLICATIONS *
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Recent Bureau Press Releases

Copies of the following releases may be obtained from Press Service, Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

Date	Subject
December 1	Notes on personnel assigned to new cotton ginning laboratory - USDA 2568-49
1	Dedication plans for new branch cotton ginning laboratory - USDA 2568-49
2	Seed of Sunray tomato available for spring 1950 - USDA 2574-49
2	New USDA Alfalfa bulletin reflects research advances - USDA 2573-49
4	In praise of the palm - C.S. 2465-49
5	Culture collection concerns many here - USDA 12-5-49
5	Kephart, weed specialist, to world bank - USDA 12-5-49
5	Abbie Brooks retires - USDA 12-5-49
6	Weed research given division status in BPISAE - USDA 2608-49
11	Travel speeds onion development - C.S. 2507-49
13	Engineers' tests show temperature effects on cows' milk production - USDA 2657-49
14	Progress through soil research stressed in BPISAE Report - USDA 2671-49
15	Chestnut returns to American scene in blight resistant varieties - Picture Story No. 71, 12-15-49
15	Apple storage refrigeration survey in Virginia reported to engineers - USDA 2680-49
15	Engineer reviews new problems in Northwest apple storage - USDA 2681-49
18	Hood sled protects onions - C.S. 2557-49
19	New vacuum method holds value for precooling vegetables - USDA 2709-49
21	Home heating - USDA 2683-49
22	Road to tobacco improvement easier through gene shifting - USDA 2742-49
25	Ever better sugarcanes - C.S. 2621-49
27	Topcrop, USDA snapbean, about doubles the usual yield - USDA 2762-49
22	Plant workers conquer canker of cowpeas - USDA 2743-49
28	Clue to uneven heating - USDA 2741-49
28	Agricultural scientists speed propagation of disease-resistant elms - USDA 2777-49
28	Pump-fed greenhouse crops may get modern mold control - USDA 2776-49
29	Engineering advancements reported for controlling weeds - in cotton - USDA 2785-49
29	Weed problem research in vegetable crops and cotton to be intensified - USDA 2788-49
19	New snap bean has less fiber, still ships well - USDA 2713-49

Departmental

Farmers' Bulletin 571 (revision) - Tobacco Culture
Farmers' Bulletin 1722 (revision) - Growing Alfalfa
Miscellaneous Publication 689 - Your Farmhouse - Heating
Technical Bulletin 1000 - - Mote Types in Cotton and their Occurrence as Related to Variety, Environment, Position in Lock, Lock Size, and Number of Locks per Boll
Plant Inventory 134 - Introductions, January 1 to March 31, 1938
Plant Inventory 136 - Introductions, July 1 to September 30, 1938
Plant Inventory 137 - Introductions, October 1 to December 31, 1938
Chief's Report for Fiscal Year Ending June 30, 1949

Outside Publications

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Siggers, Paul V. Weather and outbreaks of the fusiform rust of southern pines. Jour. Forestry, October 1949.

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